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Heart Failure and Cardiomyopathies

RIGHT VENTRICULAR LONGITUDINAL MYOCARDIAL STRAIN INCREASES IN RESPONSE TO INCREASED HEMODYNAMIC STRESS IN PATIENTS WITH END-STAGE LIVER DISEASE REFERRED FOR LIVER TRANSPLANTATION

Poster Contributions
Hall C
Sunday, March 30, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Approaches to Advanced Heart Failure: From VAD, Transplant, Palliative Care to New Perctutaneous Therapies
Abstract Category: 12. Heart Failure and Cardiomyopathies: Clinical
Presentation Number: 1221-192

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Background: Noninvasive assessment of right ventricular (RV) function in patients with end-stage liver disease (ESLD) referred for liver transplantation (LT) is critical due to the increased preload and high output state during surgery. However, data has been limited to the resting state. To our knowledge, no noninvasive data is available regarding the RV myocardial response to hemodynamic stress and the impact of pulmonary hypertension (PH) in LT candidates.

Methods: We prospectively evaluated 36 patients (19 men; average age 54±12 years); 24 in the primary group with ESLD (12 with PH) and 12 in the control group without a history of ESLD. A novel dobutamine stress echocardiography protocol was performed, which included the assessment of standard and multiple RV function parameters as well as longitudinal RV myocardial velocity and strain, using vector velocity imaging, at baseline and peak stress. Results at peak stress were compared with those obtained at baseline.

Results: Demographics were similar between the groups. RV longitudinal strain increased similarly in patients with and without PH in the primary group. (Table 1) There were no significant differences noted when compared to the control group.

Conclusion: RV function improves in response to increased hemodynamic stress with dobutamine administration. There was no difference in RV function response to dobutamine in those with PH compared to the other 2 groups. Based on this data, PH alone should not be an exclusion criterion for LT candidacy.

	Baseline			Peak		
Variables	Non PH	PH	P-value	Non PH	PH	P-value
Peak heart rate, BPM				143 ± 10	150 ± 13	0.26
% MPHR				90 ± 4	88 ± 5	0.43
Peak systolic blood pressure, mmHg				134 ± 23	142 ± 24	0.32
Peak double product, mmHg x BPM				19169 ± 3072	21375 ± 4047	0.18
Longitudinal Velocity (cm/s)						
Basal lateral longitudinal velocity	4.9 ± 1.8	5.0 ± 2.5	0.9	6.7 ± 2.8	8.0 ± 2.4	0.3
Basal septum longitudinal velocity	4.6 ± 1.6	4.9 ± 1.2	0.6	6.9 ± 3.1	6.5 ± 1.6	0.7
Apical lateral longitudinal velocity	1.5 ± 0.6	2.0 ± 1.5	0.3	3.1 ± 1.4	4.3 ± 2.3	0.1
Apical septum longitudinal velocity	1.4 ± 0.7	2.3 ± 1.0	0.03	2.7 ± 1.4	3.1 ± 1.2	0.4
Longitudinal Strain (%)						
Basal lateral longitudinal strain	-27 ± 11	-23 ± 12	0.4	-41 ± 15	-28 ± 19	0.08
Basal septum longitudinal strain	-17 ± 7	-18 ± 8	0.8	-26 ± 9	-20 ± 7	0.09
Apical lateral longitudinal strain	-18 ± 11	-17 ± 9	0.8	-27 ± 10	-26 ± 12	0.8
Apical septum longitudinal strain	-18 ± 6	-20 ± 8	0.5	-25 ± 9	-25 ± 7	0.9